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**Stage-Specific Cardiomyocyte Differentiation Method for H7 and H9 Human Embryonic Stem Cells.**

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**Authors:** Silin Sa, Kara E McCloskey

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**Public Summary:**

The generation of cardiomyocytes from human embryonic stem cells (hESC) boasts a variety of potential applications including cell transplantation for myocardial repair. Here, we provide protocols, based on the work for generating cardiomyocytes from H7 and H9 hESC. These hESC line-specific protocols reproducibly direct approximately 50 % of hESC towards the cardiac lineage.

**Scientific Abstract:**

The generation of cardiomyocytes from human embryonic stem cells (hESC) boasts a variety of potential applications including cell transplantation for myocardial repair. Unfortunately, advancements in the field has been challenged by the low efficiency of cardiomyocyte differentiation from hESC. Recently, Kattman et al. 2011 showed that individual hESC lines require a precise balance of the Activin A and BMP4 signaling for efficient cardiac differentiation. This group also presented differentiation protocols for several human and mouse ESC lines, however; two of the most utilized hESC lines, the H9 and H7 ESC, were not included. Here, we provide protocols, based on the work from Kattman et al. 2011, for generating cardiomyocytes from H7 and H9 hESC. These hESC line-specific protocols reproducibly direct approximately 50 % of hESC towards the cardiac lineage.

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